

SURGICAL MANAGEMENT OF ACCIDENTALLY DISPLACED MANDIBULAR THIRD MOLAR INTO THE PTERYGOMANDIBULAR SPACE: A CASE REPORT

I-Yueh Huang,^{1,2} Chao-Ming Chen,¹ Sung-Wen Chang,^{3,4} Chia-Fu Yang,¹
Chung-Ho Chen,^{1,2} and Chun-Min Chen^{1,2}

¹Department of Oral and Maxillofacial Surgery, Kaohsiung Medical University Hospital, ²School of Dentistry, College of Dental Medicine, Kaohsiung Medical University, ³Department of Oral and Maxillofacial Surgery, Chang Gung Memorial Hospital, Kaohsiung Medical Center, Kaohsiung, and ⁴Chang Gung University, College of Medicine, Taipei, Taiwan.

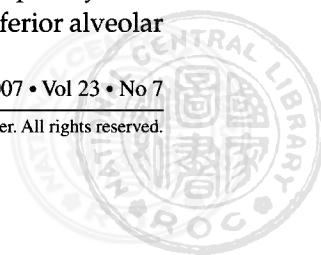
Surgical removal of the mandibular third molar is a regular surgical procedure in dental clinics, and like all operations, it may have some complications, such as infection, bleeding, nerve injuries, trismus and so on. An accidentally displaced lower third molar is a relatively rare complication, but may cause severe tissue injury and medicolegal problems. As few papers and cases have been published on this topic, we report this case to remind dentists on ways to prevent and manage this complication. The patient, a 28-year-old male, had his right lower mandibular third molar extraction in January 2006. The dentist resected the crown and attempted to remove the root but found that it had suddenly disappeared from the socket. Assuming that the root had been suctioned out he closed the wound. The patient was not followed up regularly because he studied abroad. About 3 months later, the patient felt a foreign body sensation over his right throat, and visited a local hospital in Australia. He was told after a computed tomography (CT) scan that there was a root-like radio-opaque image in the pterygomandibular space. The patient came to our hospital for further examination and management in June 2006. We rechecked with both Panorex and CT and confirmed the location of the displaced root. Surgery for retrieving the displaced root was performed under general anesthesia by conventional method without difficulty, and the wound healed uneventfully except for a temporary numbness of the right tongue. This case reminds us that the best way to prevent a displaced mandibular third molar is to evaluate the condition of the tooth carefully preoperatively, select adequate instruments and technique, and take good care during extraction. If an accident does occur, dentists should decide whether to retrieve it immediately by themselves or refer the case to an oral and maxillofacial surgeon, and should not try to remove the displaced root without proper assurance. Localization with images and proper surgical methods are the keys to retrieving the displaced fragment successfully. When immediate retrieval is decided on, Panorex and occlusal view are useful in localizing the displaced fragment. When the fragment moves into a deeper space or the retrieval has been delayed for months, three-dimensional CT seems to be a better choice.

Key Words: accidental displacement, mandibular third molar, pterygomandibular space, root fracture

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Address correspondence and reprint requests to: Dr Chun-Min Chen, Department of Oral and Maxillofacial Surgery, Kaohsiung Medical University Hospital, 100 Tzyou 1st Road, Kaohsiung 807, Taiwan.
E-mail: iyuhu@cc.kmu.edu.tw

Extraction of a mandibular third molar is a common surgical procedure in dental clinics, and the various operative complications of this procedure have been mentioned in textbooks and journals frequently, such as alveolar osteitis, dysesthesia of the inferior alveolar



and lingual nerve, trauma to adjacent tissues, hemorrhage, infection and so on. The accidental displacement of a lower third molar or one of its roots is relatively rare, and only limited information about incidence and management can be found in the literature [1]. This surgical complication might cause tissue injuries, foreign body reaction, severe life-threatening sequelae, and medicolegal implications. We present a case of displaced mandibular third molar into the pterygomandibular space to remind dentists the possible ways to proceed with this situation, how to use images to localize the fragment, and how to retrieve the fragment by different surgical methods.

CASE PRESENTATION

A 28-year-old male came to our clinic in June 2006 for removal of a displaced right mandibular third molar. Tracing back the history, the patient had his lower third molar extracted in January 2006 in a local dental clinic. After surgery, he felt mild discomfort over the right side of his throat, but as he had to study abroad, he did not seek further treatment. As the discomfort from the foreign body sensation gradually became more severe, he visited a hospital in Australia in April 2006, and computed tomography (CT) examination revealed a displaced tooth fragment in the deep cervical space.

The patient came back to Taiwan for vacation and came to our clinic for further evaluation and treatment. Upon examining his oral condition, a mild swelling without tenderness at the right throat area and only a palpable mass was noted. After checking with a Panorex, we found a radio-opaque shadow in the right ascending ramus area (Figure 1), and as the actual position of the fragment could not be confirmed, we arranged for a CT examination. The three-dimensional reconstruction CT image showed the displaced tooth fragment in the pterygomandibular space (Figure 2), and this allowed us to localize the fragment. We also contacted the dentist who had done the extraction for the patient. He said that thinking the root had been suctioned out, he had closed the wound.

The operation was performed under general anesthesia. An incision was made along the buccal and lingual sulcus of the right lower second premolar and was extended to the anterior border of the ramus. After reflecting the flap, the tooth fragment was exposed and removed without difficulty (Figure 3). The fragment,

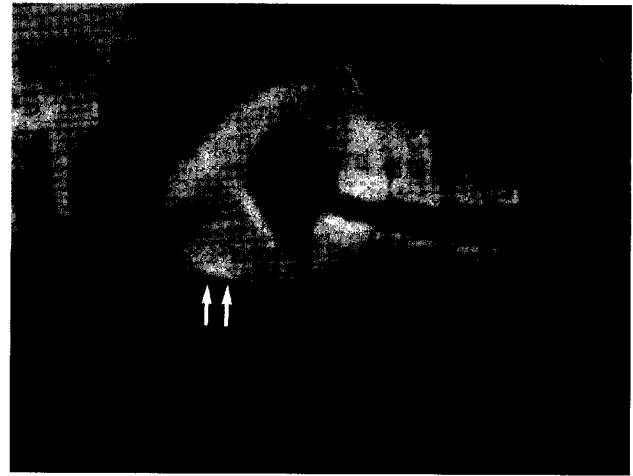


Figure 1. Panoramic film shows the right mandibular third molar root displaced to the pterygomandibular space (arrows), but it was difficult to localize the fragment accurately.



Figure 2. Three-dimensional computed tomography shows that the fragment is located in the right anterior area of the pterygomandibular space (arrow).

about 1.2 cm in length, had multiple section surfaces that had been made by the first surgical extraction (Figure 4). The wound was closed after irrigation with normal saline solution. The wound healed uneventfully, although the patient had temporary tongue paresthesia.

DISCUSSION

In 1958, Howe [2] reported about the removal of a complete mandibular third molar from the floor of the mouth. Stacy and Orth [3] described the removal of



Figure 3. The fragment of the right mandibular third molar (arrow) was found in the anterior area of the right pterygo-mandibular space during operation.



Figure 4. The root fragment was 1.2 cm in length.

a third molar root fragment from a similar site in 1964. Later reports were often in the form of letters to the editor or brief case report(s). We could find only 25 papers published on this topic between 1958 and 2005 in PubMed. We were able to retrieve and interpret only 19, and six were not written in English or Chinese. Some of them focused on methods of localization [1,4–7] and some were on retrieval technique [1,8,9].

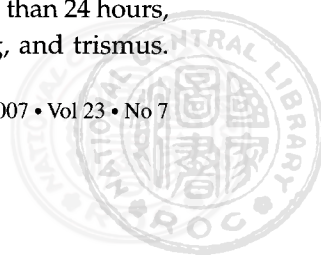
All patients with the requirement of a third molar extraction should be carefully evaluated in advance, and significant risks should be included in the informed consent discussion. Distal version and curved roots might increase the risk of displacement

of tooth or fragment. Dentists attempting these extractions should follow the general rules regarding adequate access, appropriate instruments, and avoidance of excessive force, and finger guidance should be used to prevent dislocation of the tooth to the lingual side.

When a dentist discovers that a tooth or fragments have been displaced during extraction, we recommend that the dentist should refrain from an attempt at retrieval unless the fragment is very clearly and easily visible and can be grasped. Some previous reports presented the potential for making the situation worse [4,10–13]. For instance, in the case reported by Grandini et al [11], the dentist persisted for 6 hours trying to retrieve the fragment, which resulted in severe tissue injury. Attempts at retrieval by those with limited training may result in the fragment being pushed deeper into the tissue. We recommend, therefore, that the dentist halt the procedure and refer the patient as soon as possible to an oral and maxillofacial surgeon together with all relevant information, including the size of the fragment, the circumstances of the extraction, and the X-ray films. When getting the patient to the care of a surgeon is not possible, the dentist is advised to clean the area, suture the wound, and administer antibiotics. Unfortunately, in this case, the dentist neglected to remove or localize the retained fragment and did not check the image to see where the fragment was, and such occurrences may cause infection and lead to legal problems.

We recommend checking with the Panorex first to ascertain the position of the fragment, and then checking the occlusal film to localize the fragment if immediate retrieval is planned. If the retrieval is planned to be performed later, or when the fragment is not palpable, or the panoramic and occlusal films are inconclusive, a CT scan is indicated. In our case, the retrieval was performed 5 months after the first extraction. Three-dimensional CT helped us to remove the fragment without difficulty because of accurate localization before surgery.

The timing decision of the retrieval attempt is controversial. Some surgeons recommend as early an attempt at retrieval as possible [6,11]. Others, however, argue that delay may favor fibrosis and “stabilization” of the fragment [4]. One case of a third molar displaced into the sublingual space remained asymptomatic for 2 years [14]. In our review, we found that when there is a delay in referral of more than 24 hours, the result is more pain, more swelling, and trismus.



Furthermore, some reports document infection [4,11, 15] and migration [4,12]. In our study case, the retrieval was performed 5 months after the extraction; it was easy to remove the fragment once it had been located. There was fibrotic tissue surrounding the fragment and that allowed removal without the risk of pushing the fragment into a deeper space, but the patient had the symptoms of discomfort and potential infection. In our opinion, the fragment, whenever possible, should be retrieved during the initial surgical procedure to avoid further surgery.

An extended lingual mucoperiosteal flap from the ramus to (at least) the premolar region is regarded as the "conventional method" of retrieval [8,9,16]. This method has been criticized as it provides a narrow operative field and a prominent mylohyoid ridge may obscure the view, especially in cases of small fragments in the submandibular space. In such a situation, one may consider removing the lingual plate to expose the fragment, although in our case, the fragment was in the pterygomandibular space without being affected by the ridge. Displaced fragments vary in size and may be in different tissue spaces; consequently, no single method of retrieval is applicable in all circumstances. Apart from conventional treatment, some papers report retrieval with tonsillectomy, extraoral approach, or combined intra- and extraoral approach [8]. In our study case, the fragment was in the anterior area of the pterygomandibular space, confirmed by three-dimensional CT, and could be approached by conventional method without difficulty.

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下顎智齒意外移位至翼顎間隙的手術 治療 — 病例報告

黃逸岳^{1,2} 陳昭明¹ 張松文^{3,4} 楊家福¹

陳中和^{1,2} 陳俊明^{1,2}

¹高雄醫學大學附設醫院 口腔顎面外科

²高雄醫學大學 口腔醫學院 牙醫學系

³高雄長庚醫院 口腔顎面外科

⁴長庚大學 醫學院醫學系

拔除智齒是牙科門診常見的手術之一，但一如其他的手術，也都有產生後遺症的可能，例如常見的感染、出血、神經傷害與張口受限等。然而整顆牙齒或是牙根部分，被推入翼顎間隙中，則較為罕見，但卻可能產生較嚴重的組織傷害，甚至引起醫療糾紛。牙醫師應謹慎處理智齒，尤其是埋伏性智齒；也要了解智齒被意外推入翼顎間隙時，應如何因應與處理，以減少對病人的傷害及不必要的糾紛。由於有關下顎智齒被推擠到翼顎間隙的文獻報告與案例極少，本文提出此病例報告，以提醒牙醫師注意。病患為 28 歲男性，2006 年一月，在牙科診所拔除智齒，牙醫師於切斷牙冠後，以牙根挺欲移除牙根時，牙根忽然不見了，牙醫師仔細檢查齒槽骨後，因未見牙根，而誤以為已拔除或被抽吸器吸走，便關閉傷口。病人因在國外唸書而未回診，於拔牙後三個月，開始有喉嚨異物感，並前往當地醫院檢查，在接受電腦斷層掃描後，發現有一牙根狀的影像在翼顎間隙裡，病人因學業關係，在 2006 年六月，至本院就診，希望進一步檢查，在照攝環口片與立體電腦斷層掃描，確定位置後，於全身麻醉下，經傳統式手術法，找到移位的牙根，並予以取出。術後傷口癒合正常，僅有暫時性舌尖麻木感。本病例提醒牙醫師，在拔除智齒前應仔細評估情況；拔牙時要正確使用器械及施力；並有良好的保護，如果牙根斷裂，要謹慎處理，萬一牙根或整顆牙被推擠到翼顎間隙，要確實檢查並照影像確定牙齒位置。如無把握，切勿任意嘗試拔除，以免使情況惡化，應立即轉介給口腔顎面外科醫師。一般而言，仔細定位與慎選手術方式是移除移位智齒的首要關鍵。當要立即移除異位牙根時，可用環口片攝影，配合水平向咬合片定位，如果是已經經過一段時間再要拔除的情況，或位置較深層時，則以立體電腦斷層掃描來定位較佳。

關鍵詞：意外移位，下顎智齒，翼顎間隙，牙根斷裂

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通訊作者：陳俊明醫師

高雄醫學大學附設醫院口腔顎面外科

高雄市 807 三民區自由一路 100 號

